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REMARKS

Drawing Objections

Applicant has consulted the Office of Patent Legal Administration (OPLA) regarding 37 C.F.R. 1.84(u)(1). OPLA agrees with applicant that while this rule does address Figure numbers, and does require such Figure numbers to be in numerical order, this rule does not require capital letters, following a Figure number, to be in alphabetical order. In particular, OPLA agreed that applicant's approach, of skipping a view label "8O" to prevent confusion with the number eighty, is reasonable. OPLA did suggest applicant amend the Brief Description of the Drawings, for Figure 8, to specifically state that there is no view "8O." Accordingly, applicant has amended the Brief Description of the Drawings to conform with this suggestion. Applicant respectfully submits that all drawing objections have been traversed.

Claim Rejections – 35 USC § 102(b)

The Examiner has rejected claims 1-12 as anticipated by Lin, cited by the Examiner in his Form PTO-892. Applicant respectfully submits that claim 1 as amended, for at least the following reasons, traverses the Examiner's rejections.

Claim 1 is limited to the production of an SCFG, by coupling a first context switch into the SCFG, "wherein the context switch saves a second state, of the second previously-running thread, into a state variable dedicated to the second previously-running thread."

No such use of thread-dedicated state variables is taught or suggested by Lin.

In fact, Lin teaches away from the use of thread-dedicated state variables by always encoding the state, of all concurrent threads, with the state a single program counter.

For example, Figure 4 of Lin depicts an example application of his method. Figure 4(a) depicts a "fused" Petri net, in which two concurrent processes have been combined. The two processes of Figure 4(a) are a "left" process, comprised of the transitions labeled "a" through "f," and a "right" process, comprised of the transitions labeled "f" through "l."

The location of the program counter for the left process is determined by the place-location of its the Petri net token. Similarly, the location of the program counter for the right process is determined by the place-location of its the Petri net token.

Each of Figures 4(b), 4(c) and 4(d) represents a particular combination of the program counters of the left and right processes. Each of Figures 4(b), 4(c) and 4(d), however, is treated by Lin as a single "state" (referred to by Lin as an "expansion"), that

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is possible during concurrent execution, and for which sequential code is generated.
For example Lin states:

"Give[n] an expansion segment E, represented as an acyclic Petri net fragment, our software synthesis method performs a pre-ordering of the operations in that segment."

* * *

"Given a pre-ordering π , a control-flow-graph fragment is constructed."

§ 4.2 of Lin "Expansion-based code generation." While the particular example in Figure 4 of Lin has only a small number of such states (as do the other examples selected by Lin), in general, the number of states generated by the Lin approach is subject to combinatorial explosion.

Because applicant's approach encodes the program counter of each concurrent process with its own dedicated state variable, it has the substantial advantages, over Lin's approach, for avoiding combinatorial explosion.

Note that even for the small number of states (or expansions) in the particular examples chosen by Lin, Lin notes the difficulties of generating code for each such state, due to concurrent processes sharing a single program counter, but offers no alternative:

In contrast to the traditional scheduling problem, where typically only data-flow blocks are considered, the control-flow-graph mapping step is much less straightforward. This is because we can have complex concurrent conditionals where the firing of a transition is dependent on the concurrent conflow flow and must obey Petri net firing rules.

See § 4.2 of Lin "Expansion-based code generation."

Since claims 2-9 are dependent on claim 1, claims 2-9 are allowable for at least the same reasons. Since claims 10-12 are similar to claim 1, with the exception of their being in data processing system, computer program product and computer data signal form, such claims are also allowable for at least the same reasons.

Claim Rejections – 35 USC § 103(a)

The Examiner has based his §103 rejections on claim 1 already being anticipated by Lin, and then further showing dependent claims 2 and 4, to be obvious based upon, respectively, Nilsen (U.S. Patent No. 6,081,665) and "Official Notice" that topological sorts are well known.

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As shown above, claim 1 is not anticipated by Lin, which teaches away from the use of thread-dedicated state variables, and therefore claims 2 and 4 are allowable for at the same reasons.

Applicant also respectfully points out that Nilsen relates to the implementation of virtual machines and has no suggestion that its teachings could be utilized for the Lin method. The entire thrust of Lin's approach is to teach away from the use of thread-dedicated state variables. While topological sorts may be generally known, as are a great many other possible techniques that may be applicable to any given problem domain, applicant respectfully points out that the Examiner has presented no teaching that would suggest application of topological sort to the invention as claimed.

Summary

Applicant respectfully submits that acceptable drawings have been submitted, and that all 35 USC § 102 and §103 rejections have been traversed. Therefore, applicant requests a Notice of Allowance be granted.

The U.S. Patent and Trademark Office is hereby authorized to charge any fee, deficiency, or credit any overpayment, to our Deposit Account No. 502584 referencing docket number 06816.0158.

Respectfully submitted,



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Date: January 12, 2004
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